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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,891	03/09/2004	Robert D. Cronch	STL11760	5055

7590 10/21/2005

FELLERS, SNIDERS, BLANKENSHIP, BAILEY &  
TIPPENS, P. C  
BANK ONE TOWER  
100 N. BROADWAY SUITE 1700  
OKLAHOMA CITY, OK 73102-8820

EXAMINER

MERCEDES, DISMERY E

ART UNIT	PAPER NUMBER
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2651

DATE MAILED: 10/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/797,891

Applicant(s)

CRONCH ET AL.

Examiner

Dismery E. Mercedes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 01 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18, 10-19, 22-24 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 20 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 and 01 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 13-19,22-24 have been considered but are moot in view of the new ground(s) of rejection.
2. Applicant's arguments see pages 13-15, filed 7/01/2005, with respect to claims 8-9, 20-21 have been fully considered and are persuasive. The 103(a) rejection of claims 8-9, 20-21 has been withdrawn.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 13-16, 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Takada et al. (6,038,093) in view of Deland Jr. et al. (US 5,396,369).

As to Claims 13, Takada discloses an apparatus, comprising: a sense circuit which senses a residual magnetization of a pole of a data transducer established by application of a data transmission current to transmit data (col.2, line 42-col.3, line 45 & col.5, lines 32-44, Takada et al. discloses a composite thin film head which is used to detect/sense the residual magnetization); and a demagnetizing current generator coupled to the sense circuit which removes said residual magnetization by supplying the transducer with a demagnetizing current selected in relation to the sensed residual magnetization (col.5, lines 45-50; col.6,

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lines 10-17; & col.10, lines 33-55, Takada et al. discloses that the supplied current to the pole demagnetizes the magnetic pole *or* stabilize the magnetic state of the pole).

Takada fails to specifically disclose a current generator supplying the transducer with a demagnetizing current selected in relation to the sensed residual magnetization. However, Deland Jr. et al. discloses such (col.5, lines 14-40; col.7, lines 1-18). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus disclosed by Takada et al. with the above teachings disclosed by Deland Jr. et al. the motivation being to cancel the residual magnetism of the transducer (col.1, lines 67-68).

As to Claim 14, the above combination, further discloses a data transmission current generator (as disclosed by Deland Jr. et al., see above) which applies said data transmission currents to the transducer prior to operation of the sense circuit (col.16, lines 43-48 & col.14, lines 57-66 & as depicted in Fig.4, write current supplied to the head, after completion of recording operation, reading operations is performed thus sensing the residual magnetization).

As to Claim 15, Takada et al. further discloses wherein the sense circuit detects current induced by the residual magnetism in a conductor coupled to the pole (col.5, lines 35-36; col.10, lines 35-37 & as depicted in Figures 1 and 13).

As to Claim 16, Takada et al. further discloses the conductor is connected to a write coil of the transducer (as depicted in Figures 1 and 13).

As to Claim 22, Takada et al. further discloses preamplifier driver circuit configured for use in a data storage device to supply write currents to the transducer to write data to a recording medium and detect readback signals from the transducer obtain from data previously written to the recording medium (as depicted in Fig.30A).

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1. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takada et al. in view of Deland Jr. et al., further in view of Gailbreath et al. (US 4,970,621).

As to Claim 17, the combination of Takada et al. and Deland Jr. et al. discloses the apparatus of base claim 13, but fails to particularly disclose wherein the demagnetizing current generator applies a bi-directional, time varying current of selected frequency to the transducer that tapers to a final magnitude. However, Gailbreath et al. discloses such (abstract, col.1 line 65-col.2, line 2 & col.2, line 57 – col.3, line 17 and as depicted in Figures 4 & 7).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention, to modify the apparatus as disclosed by Takada et al. and Deland Jr. et al. with the teachings as disclosed by Gailbreath et al, the motivation being to provide the apparatus with the enhanced capability of driving the magnetic transducer to a zero remanent state prior to the read cycle, thus eliminating the possibility of the occurrence of a spurious pulse during the data read back process.

As to Claim 18, Gailbreath et al. further discloses a frequency of the bi-directional, time varying current changes as said current tapers to the final magnitude (as depicted in Figures 4 and 7).

As to Claim 19, Gailbreath et al. further discloses wherein the magnitude of the bi-directional, time varying current tapers linearly, exponentially or in a step-wise fashion (as depicted in Figures 1 & 7).

2. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takada et al. in view Deland Jr. et al., further in view of Dimitrov et al. (US 6,671,117 B2).

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As to Claim 23, the combination of Takada et al. and Deland Jr. et al. discloses the apparatus as claimed in claim 22, but fail to particularly disclose the transducer is characterized as a perpendicular recording head which stores data to the recording medium along magnetic domains that are substantially aligned in a direction normal to a direction of movement of the recording medium with respect to the head.

However, Dimitrov et al. discloses such (as depicted in Fig.2, col. 1, lines 252-61 & col.2, line 61-col.3, line 15). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement a perpendicular recording head as disclosed by Dimitrov et al. in the apparatus disclosed by Takada et al. and Deland Jr. et al., the motivation being to provide with the enhanced capability of erasing the effects of the magnetic distortions in the soft magnetic material underlayer, thus preventing damage to the SNR of the readback.

As to claims 1-6, 10-12, they are method claims corresponding to the apparatus claims 13-19, 22-23 and therefore are rejected for similar reasons as set forth in the rejection of claims 13-19,22-23 respectively, supra.

As to claim 24, has limitations similar to those treated in the above rejection (see re. Claim 13) and are met by the references as discussed above.

#### ***Allowable Subject Matter***

3. Claims 8-9,20-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Klaassen et al. (US 5,168,395); Bamba et al. (US 6,147,488); Sato et al. (US 6,407,545 B1)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dismery E. Mercedes whose telephone number is 571-272-7558. The examiner can normally be reached on Monday - Friday, from 9:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571-272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dismery E Mercedes  
Examiner  
Art Unit 2651

DM



**DAVID HUDSPETH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600**